

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number  
**WO 2005/008328 A2**

(51) International Patent Classification<sup>7</sup>: **G02F 2/02**

(21) International Application Number:  
PCT/IL2004/000647

(22) International Filing Date: 16 July 2004 (16.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/487,255 16 July 2003 (16.07.2003) US

(71) Applicant (for all designated States except US): **SOREQ  
NUCLEAR RESEARCH CENTER [IL/IL]**; Nahal  
Soreq, 81800 Yavne (IL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **BLAU, Pinhas [IL/IL]**;  
PO Box 155, 99785 Nof Ayalon (IL).

(74) Agent: **KLEIN, David**; Beit HaRo'im, 18 Menuha VeNa-  
hala Street, Room 27, 76209 Rehovot (IL).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

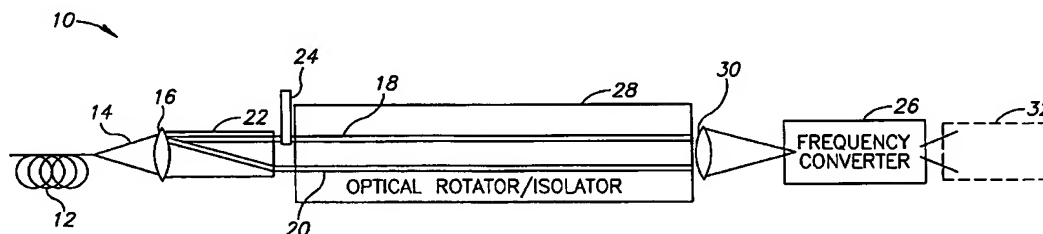
(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

**Published:**

— without international search report and to be republished  
upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: **OPTICAL FREQUENCY CONVERTER FOR NON-POLARIZED LIGHT**



(57) Abstract: Optical apparatus including an optical frequency conversion device, pumped by a non-polarized light beam. The apparatus may include a pump incident side, such as an optical fiber emitting non-polarized light beam, a polarization beam splitter to split the incident beam into two polarized beams, beam forming optics to shape the beams and rotate their polarization as required and couple them into the conversion device, and an optical frequency conversion device to convert the wavelength of both beams into a new wavelength.